C 3.158: MA 38Q(83)-1

CURRENT INDUSTRIAL REPORTS

Selected Atomic Energy Products

SEP 1 1 1984

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U.S. Department of Commerce
BUREAU OF THE CENSUS

1983
MA38Q(83)-1
Issued September 1984

SUMMARY OF FINDINGS

During 1983, the value of shipments (including shipments to U.S. Government agencies) and exports of selected important atomic energy products manufactured in privately owned establishments totaled $2,049.1 million. This represents a decrease of 4 percent from the total value of shipments in 1982. There was a 23-percent increase in net orders from $2,035.6 million in 1982 to $2,508.4 million in 1983.

A description of the survey methodology and related information appears on page 4.

Table 1. VALUE OF SHIPMENTS AND NET NEW ORDERS RECEIVED FOR SELECTED ATOMIC ENERGY PRODUCTS: 1974 TO 1983

(Millions of dollars)

Item	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974
Net new orders.....	2,508.4	2,035.6	2,174.6	1,712.8	1,611.9	2,323.0	1,915.4	2,328.8	2,004.1	3,207.7
Shipments.....	2,049.1	2,134.1	2,272.4	2,266.6	2,018.2	2,114.1	1,961.6	1,479.0	1,386.0	1,338.4

Address inquiries concerning these figures to U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233, or call Dennis L. Johnson, (301) 763-5194.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Table 2. VALUE OF NET NEW ORDERS RECEIVED FOR SELECTED ATOMIC ENERGY PRODUCTS: 1983 AND 1982

(Thousands of dollars)

Product code	Product description	Number of companies	1983	1982
	Total (excluding radiation detection and monitoring devices, and control and measuring devices containing radioactive isotopes)	87	2,508,435	2,035,637
	Nuclear reactor fuel systems:			
34990 00	Complete reactor fuel systems	-	-	502,501
34994 84	Complete reactor fuel elements and control rods shipped directly for use in a reactor	8	998,176	
33176 79	Stainless steel and alloy tubing for use in reactor fuel assemblies	1	54,977	51,437
33992 31	Partially fabricated reactor fuel cladding materials, fuel assembly hardware, and control rods not shipped directly for installation in a reactor	3		
34436 11	Core structurals (barrels, cans, boxes, plates, etc., not included above	5	115,787	90,704
34432 97	Reactor moderators and reflectors	-	-	-
35595 60	Fuel handling equipment	3	206,227	94,359
35595 64	Other reactor fuel system components sold separately	8		
	Nuclear reactor instrumentation and control systems:			
34494 00	Complete instrumentation and control systems	1	248,875	536,486
38230 15	Accessory instrumentation (for reactor control including monitoring equipment)	7		
35595 67	Control rod drive mechanisms and components	4		
35595 69	Other instrumentation system components	2		
	Nuclear reactor steam supply systems:			
34436 19	Complete reactor steam supply systems	-	-	-
34436 13	Primary vessels and tanks	6	98,086	67,007
34949 00	Valves (parts and accessories sold separately)	25	143,420	r196,606
35611 81	Pumps (parts and accessories sold separately)	6		
34436 41	Heat exchangers, condensers, and power steam generators (sold separately)	6	507,609	355,815
34436 55	Pressurizers, components, and auxiliary equipment (sold separately)	4		
34436 59	Other steam supply system components sold separately	3		
	Nuclear reactor components and equipment:			
38112 51	Hot laboratory equipment	4	20,779	9,086
38294 89	Radiographic, radiotelatherapy, and process irradiation devices and systems	2		
34438 89	Shielded transfer and shipping devices	2		26,850
34432 21	Shielding	5		
28199 92	Wholesale radioisotopes shipped from non-ERDA plants producing isotopes	2	68,240	48,822
28199 93	Retail radioisotopes produced from purchased (wholesale) radioisotopes for resale or from targets irradiated for retail suppliers	5		
28695 98	Retail organic labeled compounds	5	32,130	42,635
28199 95	Stable isotopes	3		
34436 98	Other (not included elsewhere)	5		
	Sealed and other radiation sources for--			
28199 98	Research applications	2	14,129	13,129
28199 99	Industrial applications	8	-	-
28199 94	Other applications including terrestrial and space applications	-	-	-
35595 63	Isotopic power systems:			
	Value	-	-	-
	Number shipped	-	-	-

- Represents zero. ERDA - Energy Research and Development Administration. rRevised by 5 percent or more from previously published figures.

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Table 3. VALUE OF SHIPMENTS OF SELECTED ATOMIC ENERGY PRODUCTS: 1983 AND 1982

(Thousands of dollars)

Product code	Product description	Number of companies	1983					1982				
				To U.S. Government					To U.S. Government			
			Total	ERDA	Other agencies	Export	Other	Total	ERDA	Other agencies	Export	Other
	Total (excluding radiation detection and monitoring devices and control and measuring devices containing radioactive isotopes)	105	2,049,112	179,498	573,837	240,374	1,055,403	2,134,110	209,324	519,476	290,175	1,115,135
	Nuclear reactor fuel systems:											
34990 00	Complete reactor fuel systems	2			-	(D)	(D)					
34994 84	Complete reactor fuel elements and control rods shipped directly for use in a reactor	8			(D)	(D)	317,532	747,913	(D)	(D)	100,834	
33176 79	Stainless steel and alloy tubing for use in reactor fuel assemblies	1	872,485	(D)	-	(D)	(D)					399,272
33992 31	Partially fabricated reactor fuel cladding materials fuel assembly hardware, and control rods not shipped directly for installation in a reactor	4			-			48,283	(D)	-	(D)	
34436 11	Core structurals (barrels, cans, boxes, plates, etc., not included above	5	66,983	(D)	36,195	(D)	(D)	83,713	(D)	33,139	(D)	
34432 97	Reactor moderators and reflectors	-	-	-	-	-		-	-	-	-	
35595 60	Fuel handling equipment	3		-	-	-						55,153
35595 54	Other reactor fuel system components sold separately	10	123,746	(D)	(D)	(D)	47,488	98,376	(D)	59,547	(D)	
	Nuclear reactor instrumentation and control systems:											
34994 00	Complete instrumentation and control systems	2		-		-	(D)					
38230 15	Accessory instrumentation for reactor control (including monitoring equipment)	9	240,474			12,342	123,555	r11,299	(D)	31,688	34,255	146,097
35595 67	Control rod drive mechanisms and components	5		2,854	96,172							
35595 69	Other instrumentation system components sold separately	2	92,077			(D)	(D)	76,449	(D)	(D)		17,868
	Nuclear reactor steam supply systems:											
34436 19	Complete reactor steam supply systems	-	-	-	-	-	-	-	-	-	-	-
34436 13	Primary vessels and tanks	5	59,015	-	38,670	(D)	(D)	83,502	(D)	37,853	(D)	33,124
34949 00	Valves (parts and accessories sold separately)	27	194,924		37,834	16,906	62,566	r206,037	(D)	r58,095	r22,058	r68,490
35611 81	Pumps (parts and accessories sold separately)	7		16,338		(D)	(D)				11,843	29,500
34436 41	Heat exchangers, condensers, and power steam generators (sold separately)	5	80,210		92,115	-	3,094	75,918	(D)	(D)	(D)	
34436 55	Pressurizers, components, and auxiliary equipment (sold separately)	3	(D)									251,093
34436 59	Other steam supply system components sold separately	3	137,907	-	(D)	(D)	(D)	333,911	(D)	(D)	54,333	
	Nuclear reactor components and equipment:											
38112 51	Hot laboratory equipment	4		(D)								
38294 89	Radiographic, radiotoletherapy, and process irradiation devices and systems	2	8,202	-	37	(D)	1,432	9,807	6,339	2,823	7,845	1,885
34438 89	Shielded transfer and shipping devices	3	2,220	-	-	-						
34432 21	Shielding	7	33,669	(D)	2,635		(D)	22,979				13,894
28199 92	Wholesale radioisotopes shipped from non-ERDA plants producing isotopes	2			-		(D)					
28199 93	Retail radioisotopes produced from purchased (wholesale) radioisotopes for resale or from targets irradiated for retail suppliers	5	50,007	-	4,312	13,866	5,943	57,589	(D)	(D)	30,801	48,561
28695 98	Retail organic labeled compounds	4	(D)			(D)	(D)					
28199 95	Stable isotopes	2	73,239	-	-	(D)	12,175	65,153	(D)	(D)		38,850
34436 98	Other (not included elsewhere)	4	(D)	-	-							
	Sealed and other radiation sources for--											
28199 98	Research applications	2		-	-	(D)	(D)					
28199 99	Industrial applications	9	13,954	(D)	(D)	1,658	9,599	13,181	(D)	(D)	1,752	11,348
28199 94	Other applications including terrestrial and space applications	-	-	-	-	-	-	-	-	-	-	-
	Isotopic power systems:											
35595 63	Value	-	(1)	-	-	(1)	-	(1)	-	-	(1)	-
	Number shipped	-	-	-	-	-	-	-	-	-	-	-
	Total receipts for selected atomic energy services	7	(D)	(D)	-	(D)	-	(D)	(D)	(D)	(D)	-
	Receipts for processing of special nuclear materials for--											
28199 96	Processing of nuclear fuel materials	6	159,070	(D)	(D)	154,356	-	148,106	(D)	(D)	145,036	-
28199 97	Reprocessing of irradiated reactor fuels	-	-	-	-	-	-					
	Receipts for commercial irradiation service:											
99980 73	Irradiation services designed to produce radioactivity in a target	1	(D)	-	-	(D)	-					
99980 75	Irradiation services designed to alter characteristics of materials, catalyse chemical reactions, or sterilize or preserve goods, generally known as radiation processing	-	-	-	-	-	-	(D)	(D)	(D)	(D)	-

- Represents zero. (D) Data withheld to avoid disclosing figures for individual companies. ERDA - Energy Research and Development Administration rRevised by 5 percent or more from previously published figures.

[1]This value is not included in the total value of shipment for atomic energy products.

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DESCRIPTION OF SURVEY

Scope of Survey—This survey covers firms engaged in the manufacture of selected atomic energy products specifically designed for use in nuclear applications.

Survey Methodology—The statistics in this publication were collected by mail on Bureau of the Census annual Form MA38Q, Selected Atomic Energy Products and Services. The survey panel includes all known manufacturers of the selected products covered by the survey, approximately 108 companies.

Reliability of Data—Survey error may result from several sources: (1) inability to obtain information about all cases in the survey, (2) response errors, (3) definitional difficulties, (4) differences in the interpretation of questions, (5) mistakes in recording or coding the data obtained, and (6) other errors of collection, response, coverage, and estimation for missing data. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is due to imputing data for nonrespondents, for late reporters, and for data which fail logic edits. Missing figures are imputed based on yearly movements shown by reporting firms. Imputation generally is limited to a maximum of 15 percent for any one data cell. Figures with imputation rates greater than 15 percent are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is not precisely known but is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 15 percent should be used with caution.

Revisions to Previous Period Data—Statistics for previous years may be revised as the result of corrected data from respondents, late reports for which imputations were made as described above, or other corrections. Figures which have been revised by more than 5 percent from previously published figures are indicated by footnotes.

Adjustment for Price Change—All dollar figures included in this publication are in current dollars; i.e., they have not been adjusted for price change.

EXPLANATION OF TERMS

Value of Shipments—Represents the value of physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and returns. Shipments to a company's own branches are assigned the same value as comparable sales to unaffiliated customers; i.e., the value includes an appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

Net New Orders—Net new orders are defined to include (a) the sales value of orders accepted during the reporting period for products and services to be delivered at some future date; (b) plus the sales value of orders received during the reporting period for immediate delivers; (c) plus or minus the net sales value of contract change documents which increase, decrease, (or equal), the sales values of previous orders when the parties concerned are in substantial agreement as to the amount involved. Included as orders are only those orders that are supported by binding legal documents, such as signed contracts, letters or awards, or letters of intent. In the case of letters of intent, the full amount of sales value is included if the parties concerned were in substantial agreement on this amount; otherwise, only the funds specially authorized to be expanded are included. Orders received and canceled during the year are excluded.

Complete Reactor Fuel Systems—Includes components manufactured or assembled and sold as a complete system. Excludes components sold separately.

Primary Vessels and Tanks—Includes vessels and tanks designed to contain reactor fuel elements also internal shields, nozzles, covers, closures, etc., directly associated with the primary vessel. Does not include outer containment shells.

Control Rod Drive Mechanisms and Components—Includes entire control rod drive mechanisms as well as any components thereof. Does not include control rods.

Complete Steam Supply Systems—Includes components manufactured or assembled and sold as part of a primary steam supply system. Excludes turbines, generators, and components sold separately.

Accessory Instrumentation for Reactor Control—Includes all monitoring and control instrumentation directly related to the operation of the reactor control system. Does not include environmental monitoring equipment not connected to the reactor control system, which are included on Bureau of the Census Form MA-38B, Selected Instruments and Related Products.

Fuel Handling Equipment—Includes equipment for loading and unloading reactors. Does not include items such as shielded transfer cases.

Complete Reactor Instrumentation and Control Systems—Includes components assembled or manufactured and sold as a complete system. Excludes components sold separately.

Complete Reactor Fuel Elements and Control Rods Shipped for Installation in a Reactor—Excludes nuclear fuel concentrates and enriching (these are not covered by this report). Processing of nuclear fuel materials and cladding materials performed in conjunction with fuel fabrication work and not priced separately are included.

Partially Fabricated Reactor Fuel Cladding Materials, Fuel-Assembly Hardware, and Control Rods Not Shipped Directly for Installation in a Reactor—Includes pelletizing. Does not include conversion.

Core Structurals—Includes such items as barrels, cans, boxes, and plates.

Hot Laboratory Equipment—Includes remote handling equipment, glove boxes, and other specialized hot-laboratory equipment. Does not include fuel-handling equipment.

Shielded Transfer Shipping Devices—Includes refrigerated shipping casks for nuclear materials.

Sheilding—Includes viewing windows.

Wholesale Radioisotopes Shipped From Non-Energy Research Development Administration (ERDA) Plants Producing Isotopes—Includes bulk radioisotopes from private producers that are further processed and marketed as catalog radiochemicals or radiopharmaceuticals.

Retail Radioisotopes Produced From Purchased (Wholesale) Radioisotopes for Resale or From Targets Irradiated for Retail Suppliers—Includes all radioisotopes (radiochemicals) prepared from bulk (wholesale) radioisotopes and from targets irradiated for retail suppliers plus those purchased from ERDA or from abroad. Also includes cyclotron produced isotopes. Excludes radiopharmaceuticals and organic labeled compounds.

Retail Organic Labeled Componds—Includes specialty synthesized organic compounds prepared from a radioactive element or chemical compound. Does not include compounds for radiopharmaceutical use.

Stable Isotopes—Includes carbon-13, nitrogen-15, oxygen-18, etc.

Research Applications of Sealed and Other Radiation Sources—Includes calibration, positron, Mossbauer Effect, and other custom perpared sources.

Industrial Applications of Sealed and Other Radiation Sources—Includes radiation sources for industrial radioisotope gauging, reactor start-up, radiographic, radiotelerapy, radiation processing, and isotopic power devices.

Isotopic Power Systems—Includes compact nuclear power units utilizing decay heat from radionuclides as the energy source to produce electricity.

Processing of Nuclear Fuel Materials—Includes conversion of concentrates to hexafluoride; conversion of fuel materials to oxides, metals, and compounds; pelletizing of nuclear fuels; and recovery of nuclear fuels from nonirradiated scrap.

Irradiation Services Designed to Produce Radioactivity in a Target—Includes receipts for irradiation services performed for others in test and research reactors and cyclotrons where the intent is to produce radioactivity in a target.

Irradiation Services Designed to Alter Characteristics of Materials, Catalyze Chemical Reactions, Sterilize or Preserve Goods, Generally Known as Radiation Processing—Includes receipts for irradiation services performed for others in gamma irradiation facilities or using accelerators.

HISTORICAL NOTE

Data on selected atomic energy products and services have been collected by the Bureau of the Census since 1957. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. A list of these libraries may be obtained from the Bureau of the Census regional offices:

Office	Telephone
Atlanta, Georgia	(404) 881-2271
Boston, Massachusetts	(617) 223-2327
Charlotte, North Carolina	(704) 371-6142
Chicago, Illinois	(312) 353-6251
Dallas, Texas	(214) 767-0625
Denver, Colorado	(303) 234-3924
Detroit, Michigan	(313) 226-7742
Kansas City, Kansas	(816) 374-4601
Los Angeles, California	(213) 824-7317
New York, New York	(212) 264-3860
Philadelphia, Pennsylvania	(215) 597-4920
Seattle, Washington	(206) 442-7080

RELATED REPORTS

The Bureau of the Census publishes the following related reports:

Series	Frequency	Title
Current Industrial Reports		
MA38B	Annually	*Selected Instruments and Related Products*

Series	Frequency	Title
Other Industry Reports		
M3-1	Monthly	*Manufacturers' Shipments, Inventories, and Orders*
(AS)	Annually	*Annual Survey of Manufactures (ASM)*
(MC)	Quinquennially	*Census of Manufactures*
Foreign Trade Reports		
FT 410	Monthly	*U.S. Exports—Schedule E—Commodity by Country*
FT 135	Monthly	*U.S. General Imports—Schedule A—Commodity by Country*

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone Number
Current Industrial Report MA38Q	Dennis L. Johnson	(301) 763-5194
Foreign Trade publications	Paul Herrick	(301) 763-5200
Census/ASM	Ted McGrath	(301) 763-5752
To order a Census Bureau publication	Customer Services (DUSD)	(301) 763-4100
International Trade Administration	David Climer	(202) 377-0681

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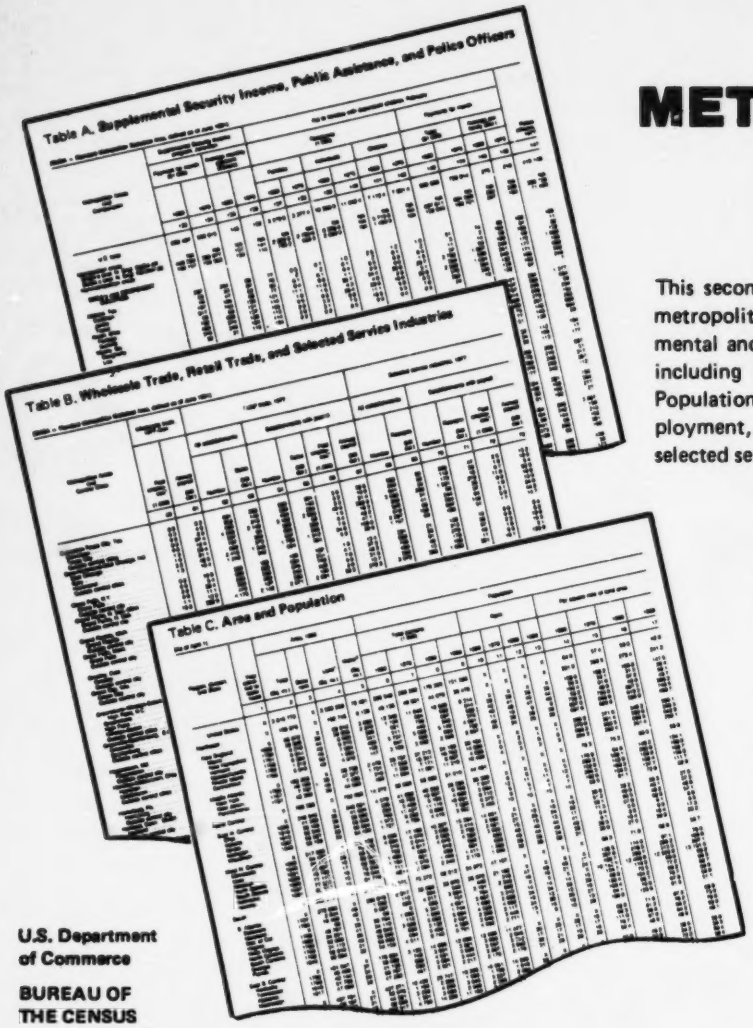
Table A. Supplemental Security Income, Public Assistance, and Police Officers
Table B. Wholesale Trade, Retail Trade, and Selected Service Industries
Table C. Area and Population

STATE AND METROPOLITAN AREA DATA BOOK 1982

This second editior shows data for the United States, States, and metropolitan areas. Data are furnished by more than 40 governmental and private agencies. It includes a wide variety of subjects, including population (featuring data from the 1980 Census of Population and Housing), vital statistics, education, income, employment, energy, manufactures, retail and wholesale trade, selected services, elections, and many others.

2,018 items for the 50 States, regions, and divisions;

320 items for metropolitan areas, which include 318 standard metropolitan statistical areas (SMSA's) and 16 New England county metropolitan areas (NECMA's), and their component counties;

73 items for central cities of standard metropolitan statistical areas;

Descriptive text, explanatory notes, source citations;

Recent trends and comparative rankings for SMSA's and for States;

4 appendixes supporting and supplementing the data.

FEATURING data from Census of Population and Housing, 1980

U.S. Department of Commerce

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